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Instructions for use

# ON SOME SPECIES OF *BRACONIDAE* FROM NORTH CHINA AND KOREA

By

CHIHISA WATANABE

(With one Textfigure)

In the following pages is given a list of some species of *Braconidae*, sent to the writer for examination by Mr. C. C. TAO of the National University of Shantung, Tsinan, China and by Mr. M. EGUCHI of the Agricultural Experiment Station, the Government-General of Chosen, Moppo, Korea.

Five species are described as new to science; all the type-specimens are deposited in the Entomological Institute of the Hokkaido Imperial University, Sapporo, Japan.

Family *BRACONIDAE*

Subfamily *Braconinae*

Tribe *Braconini*

Genus *Bracon* FABRICIUS

*Bracon* FABRICIUS, Syst. Piez., p. 102 (1804).

Genotype—*Bracon minuator* (FABRICIUS)

## *Bracon nigrorufum* (CUSHMAN)

*Microbracon* sp. KAMBE, Ann. Agr. Exp. St. Govern.-Gen. Chosen, Vol. 5, No. 4, p. 198, ♀ ♂ (1930).

*Microbracon nigrorufum* CUSHMAN, Proc. U. S. Nat. Mus., Vol. 79, p. 15, ♀ ♂ (1931).

*Bracon nigrorufum* FAHRINGER, Opusc. bracon., Bd. III, p. 338, ♀ ♂ (1934).

Host—*Pectinophora gossypiella* SAUNDERS (after T. KAMBE & R. A. CUSHMAN); *Grapholitha molesta* BUSCK (after T. KAMBE).

The writer has received many specimens bred from the larvae of *Pectinophora gossypiella* SAUNDERS by M. EGUCHI and C. C. TAO.

Habitat—Korea (Moppo, 27 ♀ ♀, 7 ♂ ♂, 13/VII, 1935, M. EGUCHI); North China (Tsinan, 1 ♀, 1 ♂, 21/IX, 1933, C. C. TAO).

Gen. Distr.: Korea and North China.

## *Bracon isomera* (CUSHMAN)

*Microbracon* sp. KAMBE, Ann. Agr. Exp. St., Govern.-Gen. Chosen, Vol. 5, No. 4, p. 203, ♀ ♂ (1930).

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[Ins. Mats., Vol. X, No. 1 & 2, November, 1935]

*Microbracon isomera* CUSHMAN, Proc. U. S. Nat. Mus., Vol. 79, p. 16, ♀ ♂ (1931).

*Bracon isomera* FAHRINGER, Opusc. bracon., Bd. III, p. 338, ♀ ♂ (1934).

Examining the present representatives it is very difficult to find any specific difference between *nigrorufum* and *isomera* except the color of the body.

Host—*Pectinophora gossypiella* SAUNDERS (after T. KAMBE & R. A. CUSHMAN).

The writer has received many specimens bred from the larvae of the same host by T. KAMBE and M. EGUCHI.

Habitat—Korea (Moppo, 3 ♀ ♀, VIII, 1927, T. KAMBE, 4 ♀ ♀, 7 ♂ ♂, 18/VII, 1935, M. EGUCHI).

Gen. Distr.: Korea.

### Genus *Habrobracon* ASHMEAD

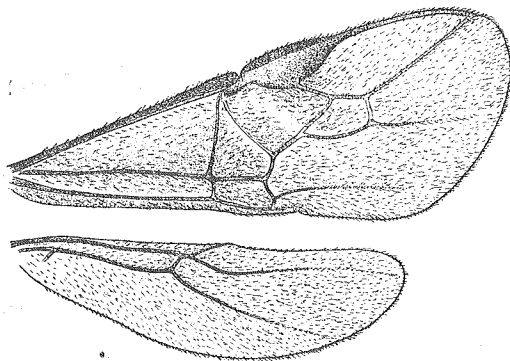
*Habrobracon* ASHMEAD, Proc. U. S. Nat. Mus., Vol. 23, p. 139 (1900).

Genotype—*Habrobracon gelechia* (ASHMEAD)

### *Habrobracon pectinophorae* sp. nov.

♀. Brownish yellow with fuscous markings; occiput, stemmaticum, a facial spot, stripes on the mesothoracic lobes, mesopleurae, propodeum, a triangular raised area of the 1st tergite, and the following tergites fuscous; legs brownish yellow; hind coxae fuscous at the base; antennae black; wings hyaline, the basal half somewhat infuscated; stigma and veins yellowish brown.

The color of the body is much variable in various degree, sometimes it is entirely brownish yellow, with no fuscous marking.



Wings of *Habrobracon pectinophorae* sp. nov. (♀)

Entire body finely coriaceous, covered with white pubescence. Face with a short median longitudinal carina above; cheeks as long as one third the length of the eye; antennae short, submoniliform, 14-15 jointed, the scapus cylindrical, the 1st joint of the flagellum a little longer than the 2nd; posterior ocelli distinctly nearer to each other than to the eye. Thorax impunctate, more strongly coriaceous

than the head; parapsidal furrows weakly indicated, smooth. Propodeum with no median longitudinal carina. First abscissa of the radius as long as the 2nd; 1st intercubitus oblique, the 2nd vertical, decolored. Abdomen oblong

1st tergite as long as broad, gradually narrowed towards the base, with a triangular raised area at the apex; 2nd tergite 1.25 times as long as the 3rd; 2nd suture almost straight, smooth; ovipositor-sheath a little shorter than one third the length of the abdomen.

Length 3 mm.

♂. Closely resembles the female in general structure and color, but the antennae longer and slenderer, filiform, 21-23 jointed, the 1st joint of the flagellum as long as the 2nd; legs darker than those of the female; two basal tergites pale yellow, except the triangular raised area.

Length 3 mm.

Holotype (♀), Allotype (♂): Moppo, Korea, 8/VI, 1935, M. EGUCHI.

Paratypes: Moppo, 39 ♀ ♀, 20 ♂ ♂, 8/VI, 1935, 3 ♀ ♀, 1 ♂ ♂, 18/VIII, 1935, M. EGUCHI.

Host—Bred from the larvae of *Pectinophora gossypiella* SAUNDERS by M. EGUCHI.

Judging from FAHRINGER's<sup>(1)</sup> description of *Habrobracon kitcheneri* (DUGEON et GOUGH)<sup>(2)</sup>, a parasite of *Earias insulana* BOISDUVAL ("Cotton bollworm") in Egypt, the present species is closely similar in its general structure, but differs from it in the antennal joints of the female.

### Tribe *Rhogadini*

#### Genus *Petalodes* WESMAEL

*Petalodes* WESMAEL, Nouv. Mén. Acad. Sc. Belg., Vol. 11, p. 123 (1838).

Genotype—*Petalodes unicolor* WESMAEL

#### *Petalodes unicolor* WESMAEL

*Petalodes unicolor* WESMAEL, Nouv. Mén. Acad. Sc. Belg., Vol. 11, p. 123, ♀, fig. 14 (1838); REINHARD, Berlin. Ent. Zeitschr., IX, p. 245, ♀ ♂ (1865); VOLLENHOVEN, Pinacograph., p. 6, Pl. 4, fig. 2, ♀ ♂ (1874); MARSHALL, Trans. Ent. Soc. London, p. 84, ♀ ♂, Pl. 3, fig. 5, ♀ (1885); id., Spec. Hymén. Europe, IV, p. 266, ♀ ♂, Pl. 11, fig. 7, ♀ (1888); THOMSON, Opusc. ent., p. 1683, ♀ (1891); SZÉPLIGETI, Gen. Ins., 22-24, p. 81 (1904); LYLE, Entomologist, Vol. 52, p. 178 (1919); HÄLLEN, Acta Soc. Fauna et Flora Fennica, 56, No. 12, p. 18, ♀ (1927); FAHRINGER, Opusc. bracon., Bd. III, p. 204, ♀ ♂ (1931).

In the present specimens, the propodeum, and the 1st tergite at the base fuscous, the antennae 31 jointed in the female and 33 jointed in the male.

Host—Bred from the larvae of *Melalopha anachoreta* FABRICIUS by C. C. TAO in North China.

This species is also known as a parasite of *Cochlidion limacodes* HUFNAGEL

(1) Opusc. bracon., Bd. I, p. 546, ♀ ♂ (1928).

(2) Journ. Agr. Egypt, Vol. 3, p. 108, ♀ (1913) (*Rhogas kitcheneri*).

and *Pygaera pigra* HUFNAGER in Europe.

Gen. Distr.: Europe and North China.

### Genus *Rhogas* NEES

*Rhogas* NEES, Nov. Acta. Acad. Nat. Cur., Vol. 19, p. 306 (1818).

Genotype—*Rhogas dimidiatus* (SPINOLA)

#### *Rhogas dimidiatus* (SPINOLA)

*Bracon dimidiatus* SPINOLA, Insect. Ligur II, p. 123 (1808); NEES, Hymen. Ichneum. affin. Monogr., I, p. 214 (1834).

*Rhogas dimidiatus* REINHARD, Berlin. Ent. Zeitschr., VII, p. 250 & 257, ♀ ♂ (1863), IX, p. 243 (1865); VOLLENHOVEN, Pinocograph., p. 6, Pl. 4, fig. 6 (1874); MARSHALL, Trans. Ent. Soc. London, p. 91, ♀ ♂ (1885); id., Spec. Hymén. Europe, IV, p. 283, ♀ ♂ (1888); THOMSON, Opusc. ent., p. 1671, ♀ ♂ (1891); SZÉPLIGETI, Gen. Insect., 22-24, p. 85 (1904); id., Ann. Mus. Nat. Hungr., IV, p. 85 (1904); id., Ann. Mus. Nat. Hungr., IV, p. 615, ♀ ♂ (1906); MORLEY, Entomologist, Vol. 49, p. 110 (1916); HELLÉN, Acta Soc. Fauna et Flora Fennica, 56, No. 12, p. 24, ♀ ♂ (1927); FAHRINGER, Opusc. bracon., Bd. III, p. 238, ♀ ♂ (1931).

In a series of the present material the head and thorax entirely black, the two basal tergites reddish brown, the antennae 39-41 jointed in the female and 52-54 jointed in the male.

Host—Bred from the larva of *Euxoa segetis* SCHIFFERMILLER by M. EGUCHI.

According to FAHRINGER the following hosts are known in Europe: *Lasio-campa quercus* LINNÉ, *Caradrina alsines* BRAHM, *Diacrisia sanio* LINNÉ, *Agrotis tritici* LINNÉ and *Orgyia dubia* TAUSCHER var. *splendida* RAMBUR.

Habitat—Korea (Moppo, 8 ♀ ♀, 8 ♂ ♂, 13/VII, 1934, M. EGUCHI).

Gen. Distr.: Europe, North Africa, West Asia, Shiberia, and Korea.

#### *Rhogas spectabilis* (MATSUMURA).

*Phanomeris spectabilis* MATSUMURA, Journ. Coll. Agr. Hok. Imp. Univ., XVIII, p. 33, ♀, Pl. IV, fig. 15 (1926); FAHRINGER, Opusc. bracon., Bd. III, p. 593, ♀ (1934); KAMIYA, Bull. Forest. Exp. St. Govern.-Gen. Chosen, No. 18, p. 54 (1934).

Host—*Dendrolimus spectabilis* BUTLER (after S. MATSUMURA and K. KAMIYA).

The writer has received 4 males bred from the same host by C. C. TAO in North China.

Habitat—North China (Tsingtoa, 4 ♂ ♂, 26-29/V, 1933, C. C. TAO).

Gen. Distr.: Korea, Japan, and North China.

### Subfamily *Cheloninae*

#### Tribe *Chelonini*

#### Genus *Chelonus* JURINE

*Chelonus* JURINE, in Panzer, Krit. Revis., Vol. 2, p. 99 (1806); id., Nouv. Méth. Cass.

Hymen., p. 289 (1807).

*Trachinotus* HALIDAY, Ent. Mag., Vol. I, p. 265 (1833).

*Chelonella* SZÉPLIGETI, Ann. Mus. Nat. Hungr., VI, p. 403, (1908).

Genotype—*Chelonus inanitus* (LINNÉ)

### ***Chelonus pectinophorae* CUSHMAN**

*Chelonella* sp. KAMBE, Ann. Agr. Exp. St. Govern.-Gen. Chosen, Vol. 5, No. 4, p. 204 (1930).

*Chelonus* (*Chelonella*) *pectinophorae* CUSHMAN, Proc. U. S. Nat. Mus., Vol. 79, p. 11, ♀ ♂ (1931); FAHRINGER, Opusc. bracon., Bd. III, p. 458, ♀ ♂ (1934).

Host—*Pectinophora gossypiella* SAUNDERS (after KAMBE and R. A. CUSHMAN).

The writer has received 6 females and 2 males bred from the larvae of the same host by M. EGUCHI.

Habitat—Korea (Moppo, 6 ♀ ♀, 2 ♂ ♂, V, 1930, M. EGUCHI).

Gen. Distr.: Korea.

### ***Chelonus tabonus* SONAN**

*Chelonus tabonus* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 71, ♀ ♂ (1932); WATANABE, Ins. Mats., VII, p. 196, ♀ ♂ (1934).

*Chelonella yami* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 74, ♀ (1932).

*Chelonus inanitus* WATANABE, Kontyû, VII, p. 247, ♀ ♂ (1933).

This species is distinguished from the congeneric species by the following characters:

- 1) Frontal depression deep, laterally margined, with a longitudinal median carina.
- 2) Antennae 16 jointed in the female, and 26-27 jointed in the male.
- 3) Ventral cavity far from the apex of the abdomen.
- 4) Abdomen of the male with no apical fissure.

Host—Bred from the larvae of *Sylepta derogata* FABRICIUS by C. C. TAO.

Habitat—North China (Tsinan, 1 ♀, 1 ♂, 26/VIII, 1933, C. C. TAO).

Gen. Distr.: Formosa, Japan, and North China.

## Subfamily ***Microgasterinae***

### Genus ***Apanteles*** FÖRSTER

*Apanteles* FÖRSTER, Verh. Naturh. Ver. Preuss. Reintl., XIX, p. 245 (1862).

Genotype—*Apanteles obscurus* (NEES)

### ***Apanteles ruficrus* (HALIDAY)**

*Microgaster ruficrus* HALIDAY, Ent. Mag., II, p. 253, ♀ ♂ (1834).

*Apanteles ruficrus* REINHARD, Deutsch. Ent. Zeitschr., XXIV, p. 368, ♀ ♂ (1880); WILKINSON, Bull. Ent. Res., XX, p. 108, ♀ ♂ (1929); WATANABE, Ins. Mats., VII, p. 78 (1932).

*Apanteles antipoda* ASHMEAD, Proc. Linn. Soc. N. S. W., XXV, p. 355, ♀ ♂ (1900).

*Apanteles manilae* ASHMEAD, Journ. N. Y. Ent. Soc., XII, p. 19 (1904). (nec *Glyptapanteles manilae* ASHMEAD, 1905).

*Apanteles sydneyensis* CAMERON, Proc. Linn. Soc. N. S. W., XXXVI, p. 342, ♀ ♂ (1911).

*Apanteles (Protapanteles) narangae* VIERECK, Proc. U. S. Nat. Mus., Vol. 44, p. 642, ♀ ♂ (1913).

Host—Bred from the larvae of *Cirphis unipuncta* HAWORTH by C. C. TAO.

This is a parasite of *Naranga aenescens* MOORE in Japan and Formosa.

Habitat—North China (Tsinan, 1 ♀, 1 ♂, 16–24/VIII, 1933, C. C. TAO).

Gen. Distr.—Europe, Japan, Formosa, Philippines, Ceylon, India, Australia, Africa, and North China.

***Apanteles taoi* sp. nov.**

♀. Black; antennae yellowish brown, darkened towards the apex; legs with the coxae reddish yellow; hind tibiae and tarsi somewhat fuscous; first tergite and belly reddish yellow; wings hyaline, the stigma and veins dark brown, the tegulae yellow.

Head punctate-rugose; face closely punctate, with a short median longitudinal ridge; facial depressions nearer to the apex of the clypeus than to the eye; antennae as long as the body. Mesonotum and scutellum punctate-rugose as in the head; mesopleurae punctate anteriorly, the remaining portions smooth and shining. Propodeum smooth and shining, irregularly striate at the apex. Breadth of the stigma, the 1st abscissa of the radius and the intercubitus, all of equal length; apical portion of the 1st abscissa of the radius as long as the pigmented portion of the 2nd abscissa of the cubitus, equal also to the apical portion of the basal nervure in length, and a little shorter than the recurrent nervure. Hind coxae smooth and shining with hair-punctures; the longer hind tibial spur as long as one half and the shorter spur a little longer than one third the length of the hind metatarsus. First tergite 1.5 times as long as broad at the apex, parallel-sided, excavated on the basal half, where it is smooth, the apical half reticulate-rugose, with parallel discal sulci, enclosing a smooth median area; 3rd tergite at the base rugose, the rest smooth and shining; 2nd suture crenulate, curved; ovipositor as long as the longer hind tibial spur; hypopygium acute.

Length 3 mm.

Cotypes (2 ♀ ♀): Tsinan, North China, 9/VI, 1934, C. C. TAO.

♂. Unknown.

Host—Bred from the larvae of *Illiberis pruni* DYAR by C. C. TAO.

This species closely resembles *Apanteles mlanje* WILKINSON,<sup>(1)</sup> but differs from the latter in the structure of the propodeum and the 2nd tergite, and in the coloration of the 1st tergite.

(1) Bull. Ent. Res., XX, ♀ ♂, p. 449, fig. 6 (1930).

***Apanteles eguchii* sp. nov.**

♀. Black; antennae reddish brown, darkened towards the apex; legs reddish yellow, except the coxae which are black; wings hyaline, the stigma and veins brown, the tegulae dark brown.

Head weakly punctate; face with no median longitudinal ridge. Mesonotum closely punctate; scutellum almost smooth, with some scattered punctures; mesopleurae closely punctate, with a deep discal furrow. Propodeum reticulate-rugose, with a median longitudinal carina. Hind coxae smooth and shining, with hair-punctures; hind tibial spurs subequal, a little shorter than a half of the hind metatarsus. First abscissa of the radius a little longer than the breadth of the stigma, 1.5 times as long as the intercubitus; apical portion of the 1st abscissa of the cubitus a little shorter than the recurrent nervure. First tergite a little longer than broad at the apex, gradually narrowed towards the base; 2nd tergite transverse, a little longer than the 3rd; three basal tergites reticulate-rugose, the others smooth and shining; ovipositor-sheath as long as the hind metatarsus.

Length 3 mm.

♂. Unknown.

Cocoons—Solitary, sulphur-yellow.

Holotype (♀): Moppo, Korea, 18/VII, 1935, M. EGUCHI.

Paratypes: Moppo, Korea, 1 ♀, 7/IX, 1935, M. EGUCHI; Tsinan, North China, 1 ♀, 8/IX, 1934, C. C. TAO.

Host—Bred from the larvae of *Earias chromataria* WALKER by E. EGUCHI and C. C. TAO.

This species comes near *Apanteles ruidus* WILKINSON,<sup>(1)</sup> a parasite of *Pyrausta machaeralis* WALKER in India, but differs from the latter in the length of the ovipositor-sheath.

***Apanteles derogatae* sp. nov.**

♀. Black; antennae dark brown; legs except the coxae reddish yellow; hind femora at the apex and the apical third of the hind tibiae fuscous; hind tibiae with a pale ring at the base; hind tarsi dark brown; palpi and tibial spurs pale yellow; wings subhyaline; stigma and most veins dark brown; tegulae black; three basal abdominal segments reddish yellow except the 1st tergite which is black.

Head finely punctate; face with a median longitudinal carina; antennae shorter than the body. Mesonotum strongly punctate; scutellum finely punctate;

(1) Bull. Ent. Res., XIX, p. 94, ♀ ♂ (1928).



mesopleurae also strongly punctate, with a broad smooth area at the posterior margin. Propodeum reticulate-rugose, with distinct costulae; areola closed at the base, V-shaped at the apex. First abscissa of the radius curved outwardly, a little longer than the breadth of the stigma; intercubitus, apical portion of the 1st abscissa of the cubitus and pigmented portion of the 2nd abscissa of the cubitus equal in length; recurrent nervure a little shorter than the 1st abscissa of the radius. Hind coxae smooth, finely punctate above, with white pubescence; the longer hind tibial spur as long as a half, the shorter spur as long as one third the length of the hind metatarsus. First tergite almost parallel-sided, slightly rounded near the apex, twice as long as broad, coarsely reticulate-rugose, with a median longitudinal furrow on the apical third and a smooth median knob at the apex; 2nd tergite as long as one third the length of the 3rd, closely reticulate-rugose, with two oblique lateral sulci, and the rest smooth and shining; ovipositor exerted, the sheath as long as the hind femur.

Length 3 mm.

♂. Unknown.

Cotypes (2 ♀ ♀): Tsinan, North China, 21/VIII, 1934, C. C. TAO.

Host—Bred from the larvae of *Sylepta derogata* FABRICIUS by C. C. TAO.

This species belongs to MARSHALL's Section II or WILKINSON's Grupe S, and it differs from *Apanteles syleptae* FERRIERE,<sup>(1)</sup> a parasite of *Sylepta derogata* FABRICIUS in Africa, in having the hind coxae smooth, the basal three tergites and the legs reddish yellow, the 2nd tergite as long as one third the length of the 3rd.

***Apanteles parnarae* sp. nov.**

♀. Black; fore legs reddish yellow, except the coxae which are black; middle tibiae at the basal third, the hind tibiae at the extreme base yellowish; four posterior tarsi dark brown to black; palpi and tibial spurs pale; wings hyaline, the stigma grayish brown, somewhat hyaline at the middle, most veins brown, the tegulae yellowish brown.

Head smooth and shining, with hair-punctures; face minutely punctate, with a smooth median ridge; antennae rather shorter than the body. Mesonotum closely punctate; scutellum almost smooth and shining, finely punctate laterally; mesopleurae smooth and shining, punctate below the tegulae. Propodeum reticulate-rugose, with an areola in the apical half which is marked by carinae, U-shaped at the apex. First abscissa of the radius as long as the

(1) in Vayssière & Mimeur, L'Agron. Colon., 90, p. 261 (1925); WILKINSON, Trans. Ent. Soc. London, pp. 318 & 341 (1932).

breadth of the stigma, its point of junction with the intercubitus rounded, not angled; intercubitus, apical portion of the 1st abscissa of the cubitus and recurrent nervure equal in length; pigmented portion of the 2nd abscissa of the cubitus as long as the upper portion of the basal nervure, shorter than the recurrent nervure; stigma shorter than the metacarp. Hind coxae smooth and shining, with white hair; hind tibial spurs subequal, as long as one third the length of the hind metatarsus. First tergite parallel-sided, twice as long as broad, the apical two thirds reticulate-rugose, with a smooth median knob at the apex, and with no median longitudinal furrow, the basal third smooth, shallowly excavated at the middle; 2nd tergite transverse, smooth and shining, the lateral sulci slightly curved; 3rd tergite 2.5 times as long as the 2nd; ovipositor elongate, the sheath as long as the hind tibia.

Length 2.5 mm.

♂. Closely resembles the female in general structure and color, but differs from the latter in having the antennae longer and slenderer, a little longer than the body, and the stigma paler than that of the female, nearly hyaline.

Length 2-2.5 mm.

Holotype (♀), Allotype (♂) and Paratypes (1 ♀, 1 ♂): Tsinan, North China, 12/IX, 1934, C. C. TAO.

Host—Bred from the larva of *Parnara guttata* BREMER by C. C. TAO.

This species resembles *Apanteles tachardiae* CAMERON<sup>(1)</sup> from India, but is easily separated from the latter in having the 1st tergite with no median longitudinal furrow.

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(1) Indian Forest Rec., IV, Pt. 2, p. 19 (1913); WILKINSON, Bull. Ent. Res., XIX, p. 119, ♀ ♂ (1928).

## 摘 要

中華國濟南、國立山東大學農學院生物學系の陶家駒氏並びに朝鮮總督府農事試験場木浦綿作支場の江口貢氏からコマユバチ類の同定を依頼された。こゝに公表して責任を果す次第である。

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